REMARKS/ARGUMENTS

1.   <u>Amendments to Claims</u>

Claims 6 and 13 have been amended to include the limitations of claims 7 and 11.

As a result, amended claims 6 and 13 now recite that the software module to be transferred is in the form of DTM and the operating program serves as an FDT-frame application, as described in the first paragraph on page 5 of the original English specification.

In addition, claims amended 6 and 13 now also recite checking the authenticity of the software module by a function block shell.

In addition to combining claims, claims 6 and 13 have been amended to explicitly recite that the function block shell is in the field device, as described for example in the third complete paragraph of the original specification ("*In a further development of the invention, a shell application is installed in the field device. . .*") as well as the paragraph bridging pages 5 and 6 of the original specification ("*For executing software code in the field device F1, a function-block shell with associated interfaces S1', S2' is provided*").

Because the amendments combine original claims, and/or are supported by the original specification, it is respectfully submitted that the amendments do not involve "new matter," and entry of the amendments is accordingly requested.

2.   <u>Rejection of Claims 6 and 8-10 Under 35 USC §103(a) in view of U.S. Patent Publication Nos. 2002/0077711 (Nixon) and 2005/0033886 (Grittke)</u>

This rejection has been rendered moot by the amendment of claim 6 to include the limitations of claims 7 and 11.

It is noted that claim 11 appears to have been included in this rejection, as set forth on page 9, even though it is not mentioned in the statement of the rejection on page 3. To the extent that the rejection does apply to claim 11, however, the rejection is respectfully **traversed** on the grounds that the Nixon and Grittke references, whether considered individually or in any reasonable combination, fail to disclose or suggest:

- authentication of the software module being transferred to the field device by a function-block shell *in the field device*.

According to page 9 of the Official Action, Nixon teaches transmitting a software module to field devices, but does not mention checking the authenticity explicitly. However, Grittke is said to teach checking the authenticity of software being transferred to field device, because paragraph [0033] of Grittke mentions that:

> *Following the actuation of the switch 14, access to the field devices 2, 3, 4, or the field bus adapter 7, is possible for a certain time span. This safety level already* offers a certain amount of protection against unauthorized accessing of the devices 2, 3, 4, 7. For instance, it is not out of the question that a plurality of accessings of the device might occur following actuation of the switch 14 and that perhaps one of them might be unauthorized. Therefore, in order to block unauthorized accessing, only the first accessing, or only one connection, is allowed after the actuation of the switch, while all additional accessing/connection attempts are rejected.

This application of Grittke is incorrect for two reasons:

a. The switch 14 that is closed to prevent access is in the field-bus adapter 7 between the fieldbus 5 and the adapter unit 8, and therefore <u>cannot possibly</u> be operated by a function-block shell in the field devices 2, 3, 4 of Grittke (see Fig. 1), and

    b.   <u>Closing a switch to prevent multiple accesses, as taught by Grittke, is not the same as checking authenticity, as claimed</u> (much less having a function-block shell in the field device check authenticity).

By closing the switch 14 after the first access, Grittke merely solves the problem that subsequent accesses are more likely to be unauthorized accesses. Grittke does not, however, prevent (or even attempt to prevent) forged software from being transferred by a clever forger during the first access. Once forged software passes through the switch 14, there is <u>nothing</u> in Grittke to prevent the forged software from being installed in any of the field devices 2, 3, or 4.

It is noted that not any software modules can be authenticated. In general, some sort of signature or processing is required before any piece of software or file can be authenticated. In the case of the claimed invention, authentication by application shells in the field devices is made possible by providing the software module in the form of a DTM according to FDT-Specifications. Grittke does not use this approach. Instead, Grittke controls transfer of software to the field devices by controlling the **field bus adapter 7**, which controls access to the fieldbus 5 and is not part of any field device. Grittke does so not only by controlling the number accesses, as in the passage quoted by the Examiner, but also by **password protection of the adapter**, as explained in paragraph [0014] of the Grittke publication. In addition, or alternatively to limiting the number of accesses, Grittke may also provide for counting and reporting the number of accesses to the field devices, as explained in paragraph [0015]. **<u>However, none of these security measures taught by Grittke involves using a function-block shell in the field device to authenticate software modules being transferred thereto</u>**. *Instead, they all involve controlling access **<u>to the fieldbus,</u>***

*and **not to any particular field device***. Therefore, Grittke does not teach the features of claim 11.

Since the Grittke application does not disclose or suggest having application shells in field devices check the authenticity of software modules being transferred to the field devices, Grittke does not make up for the deficiencies of the Nixon application, which provides no security at all for the software installation. As a result, the Nixon and Grittke publications do not render obvious the features of claim 11, which are now included in amended claims 6 and 13.

3.   Rejection of Claim 13 Under 35 USC §103(a) in view of U.S. Patent Publication Nos. 2002/0077711 (Nixon) and 2005/0033886 (Grittke), and U.S. Patent No. 5,909,368 (Nixon368)

This rejection has also been rendered moot by the amendment of claim 13 to include the limitations of claims 7 and 11.

4.   Rejection of Claim 7 Under 35 USC §103(a) in view of U.S. Patent Publication Nos. 2002/0077711 (**Nixon**), 2005/0033886 (**Grittke**), and 2005/0046838 (**Wittmer**) [actually, the body of the rejection refers to U.S. Patent No. 5,960,214 (**Sharpe**)]

This rejection is respectfully traversed, in so far as it may prospectively be applied to amended claims 6 and 13, on the grounds that Nixon, Grittke, and Sharpe (or Wittmer) fail to disclose or suggest, whether considered individually or in any reasonable combination, a method for transferring software code from a control unit to a field device in which:

•   a function-block shell in the field device authenticates software modules being transferred thereto, and

- the software modules are DTM software modules provided according to FDT-Specifications (which is what enables authentication of the software modules by the application shell).

As explained above, Nixon does not secure transfer of software modules, while Grittke takes the approach of <u>limiting access to the fieldbus</u> (via an access device 7) rather than having individual field devices authenticate software being transferred thereto.

These deficiencies are not made up for by the Sharpe publication, which teaches smart field devices with management software, but not use of the management software to authenticate software being transferred thereto. To the contrary, in the proposed combination, since Grittke teaches use of the fieldbus access device for security, there does not appear to be any obvious need for additional security at the field device level.

As to Wittmer, which appears to have been cited in error, it is noted for the record that this publication has absolutely nothing to do with software module transfer or authentication.

Finally, with respect to amended claim 13, it is respectfully noted that while Nixon368 briefly mentions a security function in a process control environment, there is **no suggestion whatsoever** that this security function involves <u>having the application shell of a field device authenticate DTM software modules being transferred thereto</u>, as claimed.

Accordingly, none of the references of record, considered in any reasonable combination, discloses or suggests the currently claimed invention,

and withdrawal of each of the rejections under 35 USC §103(a) is respectfully requested.

Having thus overcome each of the rejections made in the Official Action, expedited passage of the application to issue is requested.

Respectfully submitted,

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